

wherein at least one part of a terminal part of said metal base board at said one or more side walls is formed in a convex shape which is not joined to said one or more components, said terminal port extending in a direction that is substantially perpendicular to the first main surface.

16. (New) The housing of claim 3, wherein said vertical extension including a protruding portion proximate an edge of said first main surface, said protruding portion extending in a direction substantially perpendicular to said first main surface.

17. (New) The housing of claim 16, wherein said protruding portion is configured to facilitate separation of said non-metallic component from said metal base board. --

REMARKS

Claims 1-9 and 14-17 are pending. Claims 1-7 and 9 have been amended. Claims 10-13 have been canceled. New claims 14-17 have been added.

Claim 13 was objected to under 37 CFR 1.75(e), as being of improper dependent form. Claim 13 has been canceled. Claims 1-9 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Appropriate claims have been amended.

Claims 1, 2, 7, 6, and 13 were rejected under 35 U.S.C. 102(e) as being anticipated by Mosquera et al. Applicants respectfully traverse the rejection. Claim 1 is direct to a housing for electronic equipment. Claim 1 recites, among other features, "a metal base board including a first main surface and a second main surface, said second main surface being provided at an opposing side of said first main surface, said metal base board having at least one through hole extending from said first main surface to said second main surface, said at least one through hole being configured to facilitate an outsert-molding process; one or more components that are joined to said metal base board by said outsert-molding process; and wherein at least one part of a terminal part of said metal base board at said one or more side walls is formed in a convex shape which is not

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joined to said one or more components, said terminal port extending in a direction that is substantially perpendicular to the first main surface."

Mosquera is directed to a PC or CF card housing. The through holes 156 and 157 are provided at a side wall of the housing. Accordingly, Mosquera does not disclose, "said metal base board having at least one through hole extending from said first main surface to said second main surface, said at least one through hole being configured to facilitate an outsert-molding process..."

In addition, Mosquera disclose plastic components 52 and 80 that are joined to the side wall of the housing. That is, these components do not appear to be formed by an outset-molding process using the a though hole provided at a main surface of the metal base board. Therefore, Mosquera does not disclose, "one or more components that are joined to said metal base board by said outsert-molding process..."

Moreover, Mosquera does not disclose, "wherein at least one part of a terminal part of said metal base board at said one or more side walls is provided with a convex shape which is not joined to said one or more components, said terminal port extending in a direction that is substantially perpendicular to the first main surface." The convex-shaped terminal part is used to easily separate the metal base board and the components (see page 8). With such a features, the board and the components may be separated by a low force of 10 Newton or less (see page 9, third paragraph). Therefore, claim 1 is allowable.

Regarding claim 2, Mosquera does not disclose "one or more non-metallic components substantially covering said first main surface of said metal base board, said one or more non-metallic components being joined to said metal base board by outsert-molding" and "wherein said first terminal part is provided at a first edge of said one or more side walls and has a concave shape and said second terminal part is provided at a second edge of said one or more side walls and has a convex shape, said second terminal part extending in a direction substantially perpendicular to the first main surface." Therefore, claim 2 is allowable.

Claims 7 and 9 depend from claim 1 and are allowable at least for this reason. Claim 13 has been canceled.

Claims 4-6 and 8 were rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al. Applicants respectfully traverse the rejection.

Claim 4 is directed a housing for electronic equipment. The claim recites, "a metal base board including a first main surface, a second main surface, a plurality of through holes extending from said first and second main surfaces; first and second side walls, said side walls being provided at edges of said first main surface; and a plurality of components formed by an outsert-molding process using said plurality of through holes, a first component of said components being joined to said first main surface of said metal base board and substantially covering the first main surface, a second component of said components being joined to said first side wall, wherein said second side wall is not joined to any of said components and a ratio of thickness of said metal base board to a total thickness of said housing is in a range of 1% to 12%, said total thickness including a thicknesses of said first component joined to said first main surface of said metal base board and a thickness of said metal base board."

Chan is directed to a portable electronic apparatus housing including snap catches 52 and 54. These snap catches are not formed by an outsert-molding process and are not equivalent to "a plurality of components formed by an outsert-molding process using said plurality of through holes ..." Chan also does not disclose, "a metal base board including a first main surface, a second main surface, a plurality of through holes extending from said first and second main surfaces..." Therefore, claim 4 is allowable at least for these reasons.

Claim 6 recites, "one or more components that are joined to the metal base board by outsert-molding, said components joined to said first main surface and said first side wall and not joined to said second sidewall, said components substantially covering the first main surface, wherein a ratio of thickness of said metal base board to total thickness of the housing is in a range of 30% to 50%, said total thickness including a thicknesses of the said components joined to said first main surface of said metal base

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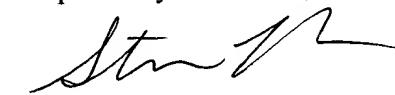
board and a thickness of said metal base board." Chan does not disclose at least the above recited features.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

All pending claims are reproduced below. The claims have been amended as indicated.

1. (Amended) A housing for electronic equipment comprising:
a metal base board including a first main surface and a second main surface, said second main surface being provided at an opposing side of said first main surface, said metal base board having at least one through hole extending from said first main surface to said second main surfaces, said at least one through hole being configured to facilitate an outsert-molding process;

one or more components that are joined to the said metal base board by said outsert-molding process; and

~~one or more side walls in which said metal base board and said one or more components are joined,~~

wherein at least one part of a terminal part of said metal base board at said one or more side walls is formed in provided with a convex shape which is not joined to said one or more components, said terminal port extending in a direction that is substantially perpendicular to the first main surface.

2. (Amended) A housing for electronic equipment comprising:
a metal base board including a first main surface and a second main surface provided at an opposing side of said first main surface, said metal base board having a first terminal part and a second terminal part;

one or more non-metallic components substantially covering said first main surface of said metal base board, said one or more non-metallic components being joined to one or more components that are joined to the said metal base board by outsert-molding; and

one or more side walls in which said metal base board and said one or more components are joined;

wherein said first terminal part is provided at a first edge of said one or more side walls and has at least one part of a terminal part of said metal base board at one or more side walls is formed in a concave shape and said second terminal part is provided at a second edge of said one or more side walls and has a convex shape, said second terminal part extending in a direction substantially perpendicular to the first main surface.

3. (Amended) A housing for electronic equipment comprising:
a metal base board including a first main surface and a second main surface provided at an opposing side of said first main surface; and

a non-metallic layer one or more components that are joined to the first main surface of metal base board by outsert-molding, said non-metallic layer being of thermoplastic polymer material; and

a plurality of side walls two or more side walls in which at least one part form by joining a vertical extension of said metal base board and is joined with said a non-metallic component of thermoplastic polymer material components,

wherein at at least one corner is formed by first and second side walls of said plurality of side walls, said first and second side walls being separated by a space two of said two or more side walls, said metal base boards forming said two side walls are not partially or entirely in contact with each other.

4. (Amended) A housing for electronic equipment comprising:
a metal base board including a first main surface, a second main surface, a plurality of through holes extending from said first and second main surfaces; first and second side walls, said side walls being provided at edges of said first main surface; and

a plurality of one or more components formed by an outsert-molding process using said plurality of through holes, that are joined to the metal base board by outsert molding, a first component of said components being joined to said first main

surface of said metal base board and substantially covering the first main surface, a second component of said components being joined to said first side wall,; and a side wall,

wherein said second side wall is not joined to any of said components and said components are joined to whole of one surface of said metal base board except for at least the side wall, and a ratio of thickness of said metal base board to a total thickness of the said housing is in a range of 1% to 512%, said total thickness including a thicknesses of said first component joined to said first main surface of said metal base board and a thickness of said metal base board.

5. (Amended) The housing of claim 4, wherein said ratio of thickness of said metal base board to said total thickness of said housing is in a range of 8% to 12%. A housing for electronic equipment comprising:

a metal base board;
one or more components that are joined to the metal base board by outsert molding; and

a side wall,
wherein said components are joined to whole of one surface of said metal base board except for at least the side wall, and a ratio of thickness of said metal base board to total thickness of the housing is in a range of 8% to 12%

6. (Amended) A housing for electronic equipment comprising:
a metal base board including a first main surface and a second main surface;

first and second side walls, said side walls being provided at edges of said first main surface; and

one or more components that are joined to the metal base board by outsert molding, said components joined to said first main surface and said first side wall and not

joined to said second sidewall, said components substantially covering the first main surface,; and

a side wall,

wherein said components are joined to whole of one surface of said metal base board except for at least the side wall, and a ratio of thickness of said metal base board to total thickness of the housing is in a range of 30% to 50%, said total thickness including a thicknesses of the said components joined to said first main surface of said metal base board and a thickness of said metal base board.

7. (Amended) The housing for electronic equipment according to claim 1, wherein a development shape of said metal base board has said at least one through hole, and has a notch of an arbitrary angle at one or more corners of the development shape.

8. The housing for electronic equipment according to claim 6, wherein a development shape of said metal base board has at least one through hole, and has a notch of an arbitrary angle at one or more corners of the development shape.

9. (Amended) The housing for electronic equipment according to claim 1, wherein on a surface of said components attached joined to on-said metal base board, said component is formed in a concave shape at at least one of portions corresponding to said through holes of said metal base board.

10-13. Canceled.

The following new claims have been added.

-- 14. (New) The housing of claim 4, wherein said ratio of thickness of said metal base board to total thickness of said housing is in a range of 1% to 5%.

15. (New) An electronic device, comprising:

circuitry; and

a housing enclosing said circuitry, said housing including

a metal base board including a first main surface and a second main surface provided at an opposing side of said first main surface, said metal base board having at least one through hole extending from said first main surface to said second main surface, said at least one through hole being configured to facilitate an outsert-molding process,

one or more components that are joined to said metal base board by said outsert-molding process, and

wherein at least one part of a terminal part of said metal base board at said one or more side walls is formed in a convex shape which is not joined to said one or more components, said terminal port extending in a direction that is substantially perpendicular to the first main surface.

16. (New) The housing of claim 3, wherein said vertical extension including a protruding portion proximate an edge of said first main surface, said protruding portion extending in a direction substantially perpendicular to said first main surface.

17. (New) The housing of claim 16, wherein said protruding portion is configured to facilitate separation of said non-metallic component from said metal base board. --